Financial retirement planning processes in the Netherlands: how do they differ between employees and solo self-employed workers?

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Abstract: The number of solo self-employed (SSE) workers is rapidly increasing in many OECD countries. This occurence has raised concerns about whether their retirement savings are sufficient. SSE workers hold more individual responsibility to save for retirement compared to employees, due to how the Dutch pension system is designed. Also, increased evidence shows that many workers are forced into self-employment due to external circumstances. This raises the question of whether SSE workers in the Netherlands are more involved in financial retirement planning compared to employees. This research aims to examine whether the relationship between clarity of retirement goals, financial retirement planning activities, and perceived retirement income adequacy differs between Dutch employees, voluntary, and involuntary SSE workers. Data come from the "Views About Retirement In the Netherlands" survey, which contains information on the retirement planning of 1699 employees and 1791 SSE workers. Contrary to expectations, solo self-employed workers and employees are similarly involved in the retirement planning process. These findings are discussed in light of their implications on retirement income security for SSE workers.

Keywords: retirement saving, self-employment, structural equation modelling (SEM)

Introduction

Engaging in financial retirement planning has been shown to be an important tool to ensure well-being during retirement (Noone et al., 2022). This process, as defined by Hershey et al. (2013, p. 8), involves "effectively balancing one's post-employment resource needs against one's future income streams". There is not only a rich body of economic literature focusing on financial retirement planning, but the topic has also received attention from psychologists and sociologists (Adams & Rau, 2011). Together with social stratification markers (Denton et al., 2004; Hershey et al., 2013; Noone et al., 2009) and financial knowledge (Lusardi & Mitchelli, 2007), many of them find a strong effect of psychological characteristics such as thinking about retirement, being forward looking, and having clear goals (Stawski et al., 2007; van Rooij et al., 2011).

However, most research focuses on individual characteristics, while not many investigations focus on planning and saving in different contexts (Van Dalen & Verbon, 1999). More specifically, most of these investigations are focused on employees, whereas little is known on other types of workers, despite the increasing flexibilization of labour markets. One category that has been recently receiving attention consists of solo self-employed workers. The idea of "being your own boss" has been growing increasingly popular, and current technology makes it easy to become a freelance worker (Conen et al., 2016, p. 8). This form of autonomous work falls under the regime of solo self-employment, which is defined as self-employment without employees. The share of solo self-employed workers has been rising in many European countries, including the Netherlands (Boeri et al., 2020). This rise also represents a policy concern, since many wonder whether SSE are saving sufficiently to ensure a comfortable retirement (Fachinger & Frankus, 2017; Zwinkels et al., 2017).

The case of the Netherlands is interesting because of its retirement context. Despite having one of the best pension systems in the world, this was designed to provide extensive coverage to employees, while self-employed workers carry much more individual responsibility for retirement savings. That is because employees are automatically enrolled in employer-sponsored pension funds, while self-employed workers are not (with a few exceptions). This differs from many OECD countries, where retirement institutions are fairly similar across labour market groups (Choi, 2009). In this sense, the different design of the pension system for employees and self-employed workers in the Netherlands provides an interesting case to investigate how differences in pension arrangements shape individual saving behaviours. In other words, institutions can influence the importance of saving for retirement among different population groups. This proposition was seldom explored and tested, except for some investigations comparing Dutch and American employees (Hershey et al., 2007; Van Dalen et al., 2010).

The changing composition of solo self-employment adds further complexity to this scenario. Increasing literature points to the existence of workers in precarious conditions falling under this regime (Boeri et al., 2020; Conen et al., 2016; Hershey et al., 2017; Tammelin, 2019). Many workers do not choose voluntarily to become self-employed, because they are forced into it from external circumstances. Therefore, it becomes increasingly necessary to acknowledge that self-employed workers are not a homogeneous group (Beusch & van Soest, 2020). The circumstances in which they entered self-employment provide an additional element to consider, which is likely to influence their retirement preparation process by interacting with the existing pension institutions.

Literature comparing the retirement process of employees and self-employed workers is still scarce. Some investigations have been conducted, but they focus on differences in retirement timing (Visser et al., 2016; Zwier et al., 2020). Two articles compared financial

retirement preparation of self-employed workers and employees. One investigation, set in Singapore, suggests that employees and self-employed workers save and invest in a similar way (Koh & Mitchell, 2019). A second investigation, set in Canada, suggest that there are no substantial differences between groups in terms of both financial knowledge and perceived savings adequacy, while employees engage more in financial planning activities compared to self-employed workers. However, these studies focus on individual characteristics, since pension institutions in these countries are similar between groups (i.e., in Canada both wage earners and self-employed workers contribute to a earnings-related scheme). Moreover, these studies do not acknowledge the existing heterogeneity within the self-employed category (Beusch & van Soest, 2020).

This article addresses the gap in the literature by asking: "To what extent does the financial retirement planning process differ between employees and solo self-employed workers in the Netherlands?". In order to answer this question, a financial retirement planning model inspired by Hershey et al. (2007, 2010) was used. This model is built upon image theory (Beach & Mitchell, 1987), which postulates that the clarity of retirement goals predicts engagement in retirement planning activities, which in turn are expected to predict perceived retirement savings adequacy. In other words, people who have concrete retirement goals will be more inclined to be proactive about pension savings, which leads them to feel more financially prepared for retirement. Given that employees and SSE workers are embedded in different institutional contexts, the overall engagement in retirement planning is expected to also differ between groups. For this research, data from the "Views About Retirement In the Netherlands" survey are used (Damman & Kraaykamp, 2022), that contain extensive information on the retirement planning and work-related events of 1699 employees and 1791 SSE workers.

This article has several contributions. First of all, this is one of the first studies investigating mechanisms underlying the differences in retirement planning processes between self-employed workers and employees, linking the literatures on self-employment and financial retirement planning. Secondly, it is focused on the Dutch context, which provides an interesting case since some pension institutions differ between self-employed workers and employees. Thirdly, this study will acknowledge not only the differences between employees and self-employed workers, but also between voluntary and involuntary SSE workers, hence acknowledging their heterogeneity (Beusch & van Soest, 2020; Hershey et al., 2017).

The Dutch retirement context

Commonly, pension systems are described and compared within the three-pillar system (Hershey et al., 2012). According to this framework, the first pillar consists of state pension, the second pillar of occupational pension plans, and the third consists of own savings. In the Netherlands, the first pillar is known as AOW (Algemene Ouderdomswet / "Old age security law"). This is a pay-as-you-go system and it ensures a minimum financial coverage for anyone who has resided in the Netherlands, based on the number of years spent in the country. The benefit amounted as it maximum to 1281,19 euros (including tax credit) for single people in 2021 (Verzekeringsbank, 2022). The second pillar supplements the state pension and consists of mostly mandatory pension plans, sponsored by employers. Employees are automatically enrolled in one every time they start a new job. Most of the time, businesses in a certain sector (i.e., construction) have a specific pension fund, as well as few professions (i.e., doctors). The capital accrued together by the contributions of employer and employees are invested collectively. Finally, the third pillar consists of voluntary savings, such as private pension plans, own savings and assets, and other financial products, which usually have tax allowances.

The Dutch pension system has often been considered as one of the best in the world. Until now, the combination of AOW (first pillar) and employer-sponsored pension plans (second pillar) aimed for a net replacement rate of around 70% for salaried workers who worked for forty years or more (OECD, 2021). That means that around 90% of employees enjoys solid income security during retirement, without engaging in any individual retirement planning. The situation may look different in the future since a new pension reform has recently been introduced. The three-pillar structure will not undergo changes, and the AOW will be maintained. However, employer-sponsored pension funds will switch from defined-benefit to defined-contributions. This due to the current pension system being too costly and pension funds running the risk of not being able to live up to their promises (Meijer, 2023).

While in many OECD countries the three-pillar system present little differences between self-employed workers and employees (Choi, 2009), this is not the case for the Netherlands. In many pensions schemes the first pillar is earnings-related, which often means that employees and self-employed contribute in a similar way. However, in the Netherlands, the first pillar is universal, while the second pillar is mostly designed for employees. This means that many self-employed workers do not automatically build up any pension beyond of the AOW benefit, which is supposed to cover only basic costs of living. In other words, SSE workers need to save individually in order to reach similar replacement rates of employees.

Calculations made by Zwinkels et al. (2017) give a picture of how retirement savings are distributed among employees and SSE workers. They show that, overall, the median replacement rate is lower for SSE workers (76% versus 83% for employees). It could be argued that, even is SSE workers have a lower median replacement rate compared to employees, it is quite high in absolute terms (70% is usually considered the threshold for a sufficient replacement rate). However, two points need to be raised. The first one is that, looking at the composition of their savings, self-employed workers have more investments in free assets, such

as investments and real estate (Mastrogiacomo & Alessie, 2015). This strategy is not without risks. Aside of the possibility of economic downturns and financial fluctuations, the biggest one is the longevity risk. While private pension schemes and AOW are life-long annuities, that is not the case for one's own possessions. This means that they are more vulnerable than employees to the financial consequences of underestimating their life-span (van Solinge & Henkens, 2018). The second one is that people with good salaries are especially at risk of low replacement rates. While the AOW can replace most of the income of low-income households, that is not the case for those with mid- to high- incomes. This means that many SSE households may have to decrease their standard of living during retirement years.

Theoretical background

Financial retirement planning is a process that requires to make complex, long-term decisions. For the most part, individuals take decisions according to their own preferences, beliefs, and abilities. However, all individuals belong to different contexts, which may shape how individual decisions take place. These concepts are referred to as *agency* and *structure* by life-course scholars, who aim to integrate these two aspects that are often analysed separately (Settersen, p. 30). In the field of retirement planning, this means examining how financial decision making operates and whether this process is affected by different contextual factors. Therefore, this study will proceed by first examining how individual agency takes place in financial retirement planning and linking it to image theory (Beach & Mitchell, 1987); secondly, by analysing the importance of agency in different working regimes, that have different institutional pension arrangements; thirdly, by analysing how being involuntarily self-employed may constrain agency in retirement decision making; finally, by combining the previous theoretical insights to formulate hypotheses on different labour market groups.

Financial retirement decision-making

How do individuals make decisions about retirement savings? Image theory (Beach & Mitchell, 1987) has often been used to describe the psychology of financial retirement planning. Image theory describes the decision makers as envisioning themselves in the future: they are examining future scenarios, which are the possible outcomes of their decisions, in forms of different images. According to their own beliefs and values, they will "choose" their favourite image; this image will act as a *goal image*, representing a state that they hope to achieve. After having envisioned their goals, they will then accordingly formulate *strategies* on how to achieve them. While their goals are preferred states, their strategies will be concrete behaviours that individuals enact to reach their goals. This image is called the *trajectory image*. Finally, the decision makers will evaluate how their strategies and behaviours are advancing them forward in the achievement of their plans. This is called *projected* image, which represents, in fact, the anticipated results of the enacted strategies.

In the context of retirement, the decision maker will envision retirement in a certain way, setting expectations and goals regarding how it will be spent. In sum: goals lead to strategies, and strategies lead to expected results. This means that formulating clear retirement goals predicts to what extent people engage in financial preparation behaviours (that is, the concrete strategies to reach goals), and financial preparation behaviours lead to higher feelings of income sufficiency during retirement (Hershey et al., 2007, 2010).

< Figure 1 around here >

Hershey et al.'s model of financial retirement planning (Hershey et al., 2007, 2010) has received much empirical confirmation in the retirement preparation literature. Quantitative inquiries focused on goal clarity rather than absolute goals (that is, the extent to which people have clear retirement goals rather than the content of those goals), and they show that the clarity

of one's goals for retirement is crucial to predict the strategies enacted by individuals, which in turn predict the subjective feeling that one's retirement savings are adequate for one's retirement (Hershey et al., 2007, 2010; Petkoska & Earl, 2009; Stawski et al., 2007). Importantly, the focus on goals showed not only theoretical but also practical relevance: a study by Hershey et al. (2003) shows that combining goal-setting exercises with information sessions for pre-retirees increases retirement planning behaviours to a larger extent compared to traditional only-information sessions. Therefore, in line with previous empirical evidence, the following hypotheses are derived:

Hypothesis 1a: Retirement goal clarity is positively associated to financial retirement planning activities.

Hypothesis 1b: Financial retirement planning activities are positively associated to perceived retirement savings adequacy.

Hypothesis 1c: Retirement goal clarity is positively associated with retirement savings adequacy via financial retirement planning activities.

The role of institutions in the financial retirement decision making

Individuals are embedded in institutional arrangements. In fact, institutions can play a major role in shaping the retirement decision making process (Van Dalen & Verbon, 1999). By providing or lacking additional social security, they can act as (dis)incentives to save for retirement. In this sense, the pension context in the Netherlands provides an interesting case to study the influence of institutions on individual behaviour, within the same cultural and economic context. Within the Dutch context, the pension institutions present differences between employees and self-employed workers. As mentioned before, solo self-employed workers are not automatically enrolled in occupational pension schemes, contrary to employees.

In fact, they are made more responsible to build up their retirement income. Accordingly, they may be expected to act differently regarding their retirement saving behaviour.

A few studies compared the retirement planning process of employees and self-employed workers, but mostly examined individual characteristics such as financial knowledge, since the welfare provisions for employees and self-employed were similar. Koh and Mitchell (2019) compared investments and savings of the two groups in Singapore, and do not find many differences. Rostamkalei et al. (2022) finds that employees save more than self-employed. Moreover, these two studies do not find evidence for financial knowledge as a potential explanation of differences in retirement preparation between employees and self-employed workers. Hence, self-employed workers do not seem to be preparing more because of their knowledge of financial matters.

The role of life course events in the financial retirement decision making

Self-employed workers are not a monolithic group. Although economic theory frames them as a self-selected group with high skills and similar preferences towards work (i.e., flexibility in working times, autonomy in the tasks, being proactive) (Boeri et al., 2020; Schippers, 2019), recent studies show a different picture. Their work trajectories differ widely, not only in the type of sector and occupation, but also showing differences in income, benefit recipiency, and labour market attachment (that is, whether they are working continuously or have frequent unemployment spells) (Beusch & van Soest, 2020; Parker & Rougier, 2007). In fact, a new line of literature argues that especially solo self-employment is linked to emerging also as a new form of precarious work (Boeri et al., 2020; Conen et al., 2016; Schippers, 2019).

While easy access to self-employment can give people autonomy, flexibility, and higher salaries, it also made possible for people to be "pushed" into it. The involuntariness of self-employment may come from different reasons: common motives reported by workers are that

they could not find a job in wage employment, their employer might have decided to hire them as subcontractors, and that self-employment for them was a last resort (Conen et al., 2016; Hershey et al., 2017). People that become self-employed due to push factors might be negatively selected in terms of skills, income, and overall capacity to generate a successful business (Moore & Mueller, 2002).

The distinction between voluntary and involuntary self-employed may affect the retirement saving process. Hershey et al. (2017) argue that the skills required to run a business are also required to plan for retirement, making voluntary self-employed better prepared for the task. Moreover, being involuntary self-employed might be stressful and burdening for workers who would prefer to be employees, since self-employment requires to deal with many additional responsibilities (Kautonen et al., 2010). Dealing with these might be energy consuming for those who do not see themselves as entrepreneurs, leading to emotional and cognitive strain. In sum, involuntary self-employed might not be in the condition to envision their retirement and save as voluntary self-employed workers.

Empirical evidence on this topic is still scarce. Qualitative evidence from Conen et al. (2016, p. 90) suggest that SSE workers with a precarious economic situation have more pessismistic views about their future retirement savings adequacy. Hershey et al. (2017) found that involuntary SSE feel less prepared for retirement than voluntary ones.

Financial retirement decision-making: differences between labour market groups

As argued by life course theory, individuals are embedded in larger institutional contexts that shape their life courses and decision processes (Van Dalen & Verbon, 1999, p. 153). Adopting the main concepts of life course theory, this entails that SSE workers are in fact in a different *structural* situation compared to employees, and their *agency* plays a much more important role compared to salaried workers. This means that their goals, plans, and decisions

can be expected to shape their retirement planning outcomes to a much larger extent than for employees. Hence, goal clarity is expected to have a stronger impact on financial retirement saving activities for self-employed workers compared to employees. Moreover, financial planning activities are expected to impact their perceived savings adequacy to a larger extent, since they are much more dependent on them.

However, as argued, there are differences among self-employed workers. Some chose to be self-employed, while others did not. In terms of life-course approach, this translates into what scholars have defined "constrained agency" (Damman & Henkens, 2017). While individuals have a potential to shape their own trajectory, sometimes external factors limit the possibility of making purposeful decisions. Hence, the constraints may limit the extent to which people can fulfil their own goals by acting strategically to ensure financial well-being in later life. While image theory stresses the different stages of planning, qualitative evidence suggests that this process is not the same for everyone. Planning might be a luxury that comes with control over one's own time and resources, whereas people facing daily hardships will have less possibilities to match their retirement goals with saving strategies (Denton et al., 2004). Similarly, financial planning behaviours might have a weakened impact on perceived adequacy of retirement savings for involuntary self-employed workers compared to voluntary ones. The former might be less likely to monitor how their strategies are being effective due to lack of energy, motivation, and entrepreneurial capabilities.

Therefore, following the idea of the differential role of agency between different institutional and life course contexts, the following hypotheses are derived:

Hypothesis 2a: The effect of retirement goal clarity on financial retirement planning activities is the strongest for voluntary SSE workers, followed by involuntary SSE workers, and employees.

Hypothesis 2b: The effect of financial retirement planning activities on perceived retirement savings adequacy is the strongest for voluntary SSE workers, followed by involuntary SSE, and employees.

Hypothesis 2c: The total effect of retirement goal clarity – via financial retirement planning activities – on perceived retirement savings adequacy is the strongest for voluntary solo self-employed workers, followed by involuntary SSE workers, and employees.

Data & methods

Data

In this project, data from the "Views About Retirement In the Netherlands (VARIN)" study are analysed (Damman & Kraaykamp, 2022). These are survey data based on a web-questionnaire, which were collected between January 25 and February 8, 2021. The study population comprises of SSE workers and employees aged 40 years and older in the Netherlands. The data collection has been conducted by two organizations: I&O Research and Kantar. These organizations collected the data via two large-scale online panels (I&O Research Panel and the NIPObase Panel) to be able to reach a sufficiently large group of SSE individuals. Filling in the questionnaire took on average 15 minutes. The overall response rate was 55.9%. An important advantage of both these panels is that respondents were sampled by the organizations (no self-registration into the panel). I&O Research and Kantar store the collected data decoupled from personal information, as prescribed in the GDPR.

The participants were asked questions about their retirement preparation attitudes and behaviors, as well as work characteristics and life course events. Respondents self-classified themselves into their employment regime at the beginning of the questionnaire by answering the question "Which situation most applies to you right now?". Only those who classified

themselves as either employees or SSE were invited to continue the survey. Those who reported to have a side job were classified according to their main occupation (a sensitivity check was performed by excluding them from the analysis, see Supplementary Materials 4). After excluding the participants that were older than the statutory retirement age (66 years and 4 months at the time), the final group sizes is 3,460 workers, of which 1,699 are employees and 1,761 SSE workers.

Variables and measures

The section below reports how the main constructs were measured. Participants could answer to the questions on a Likert scale ranging from 1 "Strongly disagree" to 5 "Strongly agree", unless differently specified. Descriptive statistics on specific items can be found in Table 1 and Appendix 1.

Perceived retirement savings adequacy, which is the main dependent variable of this study, was measured with three items based on a scale developed by Hershey et al. (2010), translated from English to Dutch (here presented in the original English version). The first was the answer to the question "*Suppose you would stop working completely when you reach the state pension age. Do you think you will have built up enough retirement savings to retire comfortably?*". Respondents were asked to answer on a Likert scale ranging from 1 "Certainly not" to 5 "Certainly". The first item was slightly reformulated to refer link to the Dutch context, since in the original formulation it refers to state pension age (AOW). For the second and third items, respondents were asked to indicate the extent to which they agreed with the statements "*I'm saving enough to retire comfortably*" and "*I expect to have a good retirement income*".

Financial retirement preparation behaviours, which are examined as a mediator variable, were measured with three items based on a scale developed by Hershey et al. (2010). The three indicators were "*Calculations have been made of how much money I need to save to*

retire comfortably", "*I have informed myself about the level of my future pension benefits*" and "*I have informed myself about financial preparation for retirement in the past few years*".

The main independent variable is retirement goal clarity, which was measured as in Hershey et al. (2010). The three measurement items are "*I have thought a great deal about quality of life after retirement*", "*I set specific goals for how much will need to be saved after retirement*" and "*I have a clear vision of what life will be after retirement*".

To classify SSE respondents as either voluntary or involuntary, a question asked which of the following statements described their situation best: "*It was natural for me to become self-employed. My profession is almost never performed as employee*" (N = 370), "*I have consciously chosen to be self-employed. My profession can be both salaried and self-employed*" (N = 1111) and "*I was forced into self-employment*" (N = 380). Respondents who answered this latter option were classified as "involuntary self-employed", while the rest were classified as "voluntary self-employed". This variable presents 10 missing cases that were dropped from the analyses.

Control variables for socio-demographic characteristics are included following previous studies on the topic (Hershey et al., 2007, 2010, 2017; Van Dalen et al., 2010) and literature reviews on financial planning (Adams & Rau, 2011; Hershey et al., 2002). We controlled for age, gender, marital status, education, income, health limitations, and perceived financial knowledge (see Table 1). Moreover, because the data were collected during the Covid-19 pandemic, controls that account for change in financial situation due to the pandemic are included. An indicator was constructed by taking the mean answer to three questions. The questions asked: "To what extent have the following changed for you (decreased or increased) due to the impact of Covid-19 crisis? (1) Paid working hours; (2) Income from work per month; (3) Household income per month". In this case, the 5-point Likert scale ranged from "Strongly reduced" to "Strongly increased". Then, values equal to three were coded as "Unchanged",

while values below three were coded as “Decreased income” and values above three were coded as “Increased income”.

Analytical strategy

To answer the research questions and test the hypotheses, structural equation models (SEM) were estimated. This analytical strategy is chosen because it allows to estimate simultaneously a measurement model and a structural model. Complex constructs (in this case, retirement goal clarity, financial retirement preparation behaviours, and perceived retirement savings adequacy) are treated as latent and measurement error is taken into account (Kline, 2015, p. 19). Moreover, it allows to test for structural differences between groups (Horn & Mcardle, 1992), after ensuring that the measurement is the same.

As common practice in SEM methodology, the absolute and relative model fit was reported. Because the sample size in this study is large, fit indexes that are resistant to large N samples were used (West et al., 2012). These include three indexes: the Root Mean Squared Error of Approximation, or RMSEA (Steiger, 1990), Tucker-Lewis Index, or TLI (Tucker & Lewis, 1973), and Comparative Fit Index, or CFI (Bentler, 1990). Guidelines for a good model fit are established as <0.06 for RMSEA, and >0.95 for CFI and TLI (West et al., 2012). AIC and BIC were also reported, where lower values indicate a better fit (Akaike, 1998; Myung & Pitt, 2004).

Different models are specified as follows. First, a confirmatory factor analysis (CFA) was performed to assess the quality of the measurement (Model 1). Then, a model specified on the full sample of workers was analysed (Model 2). Afterwards, a test of measurement invariance was conducted between groups, where a partially invariant model was retained (full procedure in Supplementary materials 2). Because two intercepts (first and second measurement items of retirement goal clarity) were not constrained to be equal across groups,

the absolute levels of retirement goal clarity cannot be compared between groups. The final model was a multi-group model tested between employees, voluntary, and involuntary self-employed workers. In this model, path coefficients are estimated separately for each group.

Model 2 is used to test hypothesis H1a, H1b, and H1c, as well as the effects of the control variables. Model 3 is used to test H2a, H2b, and H2c. To estimate the total effect of retirement goal clarity on perceived retirement savings adequacy via financial retirement planning activities (Hypothesis H1c) and its difference between groups (Hypothesis H2c), path coefficients of retirement goal clarity and financial retirement planning activities were multiplied to obtain point estimates and Monte Carlo confidence intervals were computed (Preacher & Selig, 2012). To test for differences between groups in the estimated coefficients of goal clarity (H2a) and financial planning activities (H2b), Wald tests with model constraints were performed (Chou & Bentler, 2002).

Data handling was performed on Stata 14, whereas the analyses were performed in RStudio, with the package lavaan (Rosseel, 2012). Since indicators of the main latent variables were based on 5 answer categories, they were treated as continuous (Rhemtulla et al., 2012); hence, maximum likelihood estimators were used. Missing data were handled with the full maximum likelihood (FIML) method.

Results

< Table 1 and Table 2 around here >

Table 1 shows the sample descriptives. Some differences can be noticed between groups. In this sample, SSE workers seem to be on average more educated than employees, in line with previous findings (van Stel & van der Zwan, 2020). The income distributions also appear different: more SSE workers, especially the involuntary ones, have a low income, whereas a higher percentage of voluntary SSE's earn 4000 euros or more compared to

employees and involuntary self-employed workers. Finally, both categories of SSE workers seem to be more impacted financially by the Covid-19 situation compared to employees. Table 2 shows that, overall, employees, voluntary, and involuntary self-employed do not differ much in retirement goal clarity and financial retirement planning activities. However, they seem to differ in terms of perceived retirement saving adequacy, where 66% of employees expects to be able to live a comfortable retirement if they stopped working at state pension age, compared to 56% of voluntary and 46% of involuntary self-employed workers.

< Figure 2 around here>

First, a confirmatory factor analysis was estimated, which yield a satisfactory fit (RMSEA = 0.078, CFI = 0.94, TLI = 0.96). This suggests that the measurement items represent the latent constructs reasonably well. Model 2 presents the structural model specified on the full sample of workers, without differentiating between groups (see Figure 2; RMSEA = 0.070, CFI = 0.908, TLI = 0.879). This model shows support for hypotheses H1a, H1b, and H1c, since all coefficients are positive and statistically significant. For the control variables, all coefficients are in the expected directions except for the effect of education on perceived retirement savings adequacy, which is not statistically significant and in a negative direction. This is possibly due to the characteristics of the SSE sample, which shows both high levels of education and low levels of retirement preparedness.

< Table 3 and 4 around here >

Table 3 shows the parameter estimates of the effect of retirement goal clarity on retirement financial planning activities and of financial retirement planning activities on perceived savings adequacy for each group, as well as the full mediation effect, as estimated in the multi-group SEM model (Model 3; RMSEA = 0.070, CFI = 0.894, TLI = 0.871). The full results of Model 3 can be found in the Supplementary materials 3.

Table 4 reports the Wald tests of the model coefficients between groups. Three-group comparisons show that the effect of goal clarity on financial retirement planning activities does not differ significantly between groups (Wald(2) = 5.637, p = 0.060). Hence, Hypothesis 2a stating that the strength of retirement goal clarity on financial planning differs between groups is not supported. However, there is a statistical difference between involuntary and voluntary SSE workers (Wald(1) = 5.248, p = 0.022). This means that effect of retirement goal clarity on financial planning activities is significantly stronger for voluntary SSE workers compared to involuntary ones, but not significantly different from employees. The effect of financial retirement planning activities on perceived retirement savings adequacy is significantly different between the three groups (Wald(2) = 7.900, p = 0.019). A further examination of two-by-two comparisons suggests that this difference is driven from differences between employees and involuntary SSE workers. Looking at the coefficients in Table 4, the strongest effect is found for involuntary SSE workers, followed by voluntary SSE and employees. Hence, the perception that retirement income will be sufficient to live comfortably is most strongly predicted by the level of financial planning activities undertaken for involuntary SSE workers, and most weakly for employees. This only partially confirms Hypothesis 2b, stating that the effect of financial retirement planning activities on perceived savings adequacy is the strongest for voluntary SSE workers, followed by involuntary SSE workers, and weakest for employees.

< Figure 3 around here >

Figure 3 presents the point estimates and Monte Carlo confidence intervals of the total mediation effect, calculated by multiplying the two path coefficients shown, for each group. This is done to test the Hypothesis 2c, stating that the total mediation effect is stronger for voluntary SSEs, followed by involuntary SSE's and employees. The point estimates seem to support this hypothesis. However, a visual inspection of Figure 3 suggests that the CI's of the

three groups overlap. Hence, the differences are not statistically significant. Hence, Hypothesis 2c is not supported.

Sensitivity checks

Three sensitivity checks were performed. The first one was performed by removing from the analysis people who report to having both an occupation as SSE and employees. The remaining two were performed by classifying involuntary SSE workers in different ways. In one check, only those who responded "I have consciously chosen to be self-employed. My profession can be both salaried and self-employed" (N = 1111) were classified as voluntary SSE workers and the rest as involuntary. In a second check, each category of question 21 was treated as a different employment group. Results do not substantially differ. See Supplementary materials 4 for more details.

Discussion

Financial retirement planning is an important tool to ensure an adequate standard of living during retirement. Previous research on financial retirement planning focused on employees and rarely considered different types of workers, such as self-employed workers. The Netherlands provides an interesting context to study differences in preparation between self-employed workers and employees, since SSE workers are made more responsible to save because of how the pension system is designed. In the current research, a financial retirement planning model inspired by Hershey et al. (2007, 2010) was tested between employees, voluntary, and involuntary self-employed workers. It was argued that the effect of retirement goal clarity on financial retirement planning activities and perceived retirement savings adequacy would be the highest for voluntary SSE workers, followed by involuntary ones, and employees, due to their institutional and situational differences. Overall, the results do not fully support this hypothesis. Contrary to our expectations, they suggest that Dutch employees and

SSE workers, especially voluntary ones, are similarly involved in the retirement planning process. This is in line with previous findings from different countries, which suggest that employees and self-employed workers prepare similarly for retirement (Koh & Mitchell, 2019; Rostamkalaei et al., 2022).

The descriptive results suggest that institutions and life course circumstances play a role in their retirement preparation, but only in the levels of perceived retirement preparedness. Employees feel the most confident about the amount of their future retirement income, followed by voluntary SSE, while involuntary SSE feel the least confident. However, only a minority of respondents engages in retirement planning activities. This does not change between labour market groups. Unexpectedly, it was found that SSE workers, especially involuntary ones, have lower incomes despite higher levels of education. They also report to be severely affected from the Covid-19 pandemic, more than employees.

Findings from the SEM analysis support the proposed model of financial retirement planning. For all groups of workers, retirement goal clarity is positively associated with perceived retirement savings adequacy through engagement in financial planning activities. These findings are in line with Herhsey et al. (2007, 2010) and provide further support to image theory (Beach & Mitchell, 1989) applied to the retirement planning context.

The theoretical framework also suggested that these relationships would be strongest for voluntary SSE workers, followed by involuntary SSE workers, and weakest for employees. This argument was based on the idea that agency in financial retirement planning is more important for self-employed workers compared to employees due to institutional differences, but that agency is also constrained for involuntary compared to voluntary SSE workers due to life occurences. According to the results, little differences between groups are present, and they are mostly driven by involuntary SSE workers. This suggests weak importance of institutional differences and somewhat stronger role of life events on the retirement planning process.

Having clear retirement goals is not differently associated with the amount of financial planning activities between SSE workers. However, within SSE workers, this effect is lower for involuntary compared to voluntary ones. This finding suggests that involuntary SSE workers are the least likely to match their retirement goals with concrete saving strategies. Retirement planning activities seems to have a differential effect on perceived savings adequacy between different groups of workers, but the differences are mostly found between employees and involuntary SSE workers. Hence, involuntary SSE workers seem more aware than employees of how (the lack of) engagement in financial retirement planning activities will condition pension savings.

However, even when statistically significant, the differences are relatively small and do not suggest strong differences between groups. Moreover, the overall effect of goal clarity on perceived retirement savings adequacy through financial planning activities does not differ between groups of workers to a significant extent. Most remarkably, none of the results show significant differences between voluntary SSE workers and employees, differently from our expectations. Voluntary SSE workers seem to link goals, strategies, and expectations about retirement savings in a similar way to employees despite the differences in the pension context. One possible explanation of this can be found in the bounded rationality perspective (Benartzi & Thaler, 2007). The theoretical model used in the current study, based on image theory (Beach & Mitchell, 1987), assumes moderate rationality – people formulate goals and act upon those goals. Given that people find it difficult to think ahead, financial retirement planning can be a daunting task. For example, employees have been found to be very sensitive to default options when it comes to financial retirement decision-making (Madrian & Shea, 2001), as well as colleagues' behavior (Duflo & Saez, 2002) and perceived social norms about saving (Bailey et al., 2004). Hence, their decisions do not seem to be based on utility maximization. The results of the current research suggest that SSE workers, especially voluntary ones, may be susceptible

to similar bias. They might procrastinate in thinking about retirement and be susceptible to the default option (that is, limited saving). Moreover, they may lack a social context where to discuss these decisions. Hence, the findings on employees might extend to self-employed workers as well, but with starker consequences for their financial well-being during retirement. Further research might want to test, for example, if changing the standard option (i.e., enrolling self-employed automatically in saving schemes) would influence their perceived retirement preparedness.

There might be other reasons that explain why SSE workers engage in little financial planning. For example, self-employed may count on working longer than employees (van Dalen et al., 2022; Zwier et al., 2020), which might be considered a strategy to finance one's retirement. Moreover, previous research shows that they tend to invest in free assets, including real estate investments (Mastrogiacomo & Alessie, 2015; Zwinkels et al., 2017). Same can be said about alternative strategies that self-employed people might (also unknowingly) rely on the household level, such as partner's income. While these mechanisms might be at play, they all present risks. The longevity risk is one of them, as previously discussed. Also, relying on one's (or one partners') future income may be vulnerable to unexpected events, such as being unable to work due to sickness. Hence, none of these alternative explanations make the issue presented less relevant.

This study presents some limitations. The first limitation concerns the data used for the analysis, since most respondents in the sample hold a bachelor's degree or higher, hence they cannot be generalized to the Dutch population. While this is a limitation, it makes the results interesting since it can be expected that the average levels of perceived retirement savings adequacy might be even lower in presence of less educated respondents. Secondly, the data were collected during the Covid-19 pandemic, which makes them less generalizable to other historical periods. Finally, the causal relations assumed are only theoretical and could not be

formally tested. Hence, issues regarding reversed causality cannot be excluded (i.e., perceived retirement savings adequacy leading to financial planning rather than the other way around). Using longitudinal data would allow to test the causal order implied in the theory section.

Nevertheless, the results hold both scientific and policy relevance. By conducting this investigation, a contribute to the retirement planning literature was made by extending existing theoretical findings (van Dalen et al., 2010; Hershey et al., 2007, 2010) to self-employed workers. They show that perceived retirement savings adequacy is predicted by retirement goal clarity and financial retirement planning activities to a similar extent for different labour market groups. Moreover, a contribution was made by distinguishing between voluntary and involuntary self-employed workers, although differences between the two groups were found only in a socio-demographic characteristics and in perceived savings adequacy levels. These descriptive statistics confirm previous findings on the precarious economic situation of involuntary SSE workers (Boeri et al., 2020; Conen et al., 2016; Hershey et al., 2017; Kautonen et al., 2010). Finally, it adds to the current policy debate on the retirement of solo self-employed workers in the Netherlands. Previous research suggested that Dutch SSE workers are not sufficiently prepared for retirement (Beusch & van Soest, 2020; van Dalen et al., 2022; Zwinkels et al., 2017). The current research supports these findings and highlights the role of their retirement planning process (or lack thereof) as a partial explanation. They suggest that, even if their institutional context makes them responsible for their retirement income, SSE workers feel and act as they were employees.

The current research has practical implications as well. Given that SSE workers seem to be less prepared for retirement compared to employees (van Dalen et al., 2022; Zwinkels et al., 2017), solutions based on the interplay between agency and context are either (1) stimulating SSE workers to plan more or (2) making retirement institutions more similar between the two groups. Based on image theory, incentivizing SSE workers to set retirement

goals (i.e., through seminars or awareness campaigns) could improve their engagement in retirement planning. This, combined with financial information, has shown to increase saving practices among American employees (Hershey et al., 2003). On the other side, changing the institutional context may also prove effective. Hence, current findings encourage the recent experiment of the Dutch government to automatically enroll SSE workers in a dedicated pension fund (Herderscheê, 2022). This might nudge them in the right direction for higher income security during retirement.

Statement of ethical approval

This study was approved by the Ethics Review Board of the Faculty of Social & Behavioural Sciences (FERB) of Utrecht University

Declaration of contribution of authors

CM conceived the idea, developed the theoretical framework, and carried out the analysis. MD collected the data and supervised the writing process. PP advised for statistical analysis and supervised the writing process. All authors discussed the results and contributed to the final manuscript.

Statement of competing interest

The authors declare no competing interests.

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Table 1. Descriptive statistics (socio-economic indicators)

	Employees (N = 1699)		**Voluntary SSE (N = 1389)**		**Involuntary SSE (N = 362)**	
	% Missing	*Mean*	*% Missing*	*Mean*	*% Missing*	*Mean*
Age	0	56.62 (7.40)	0	55.27 (7.05)	0	57.71 (6.49)
Gender (% women)	0	45.6%	0	52.0%	0	44.8%
Marital status (% married)	0	58,6%	0	61,6%	0	59,9%
Education level	0.06%		0.29%		0.28%	
Primary or lower secondary[a]		21.8%		8.1%		8.6%
Upper secondary vocational		25.8%		16.3%		16.9%
Bachelor's degree		37.6%		47.4%		49.0%
Master's degree or above		14.7%		28.2%		25.5%
Income level (euros)	4.00%		10.44%		9.67%	
Less than 1.000		4.9%		20.4%		31.5%
1.000 - 1.500		9.7%		17.4%		20.8%
1.500 - 2.000		17.6%		13.7%		12.5%
2.000 - 2.500		22.7%		12.4%		13.8%
2.500 - 3.000		19.7%		8.9%		5.5%
3.000 - 4000		18.5%		10.9%		8.3%
4000 or more		6.9%		16.2%		7.6%
Health limitations	0		0		0	
None		79.1%		79.6%		68.8%
Some		18.4%		18.2%		24.3%
Severe		2.5%		2.2%		6.9%
Financial knowledge	0		0.79%		0.55%	
Low		21.5%		18.2%		20.6%
Neutral		38.4%		35.6%		34.2%
High		40.1%		46.2%		45.3%
Impact of Covid-19 on income[b]	0		0		0	
Decreased		8.7%		46.6%		55.2%
Unchanged		78.3%		42.6%		37.0%
Increased		13.1%		10.8%		7.7%

Note: SSE stands for "solo self-employed". Standard deviations are in brackets.
[a] Includes primary education, lower vocational training, secondary theoretical or professional education
[b] Measured by change in working hours, personal, and household income after Covid-19

Table 2. Descriptive statistics (central variables)

Variable	Item	Employees	Voluntary SSE	Involuntary SSE
Retirement goal clarity	"I think a lot about life after retirement"	27%	15%	22%
	"I set specific goals for how much to save for retirement"	17%	23%	22%
	"I have a clear vision of what life will be like after I retire"	29%	24%	26%
Financial retirement planning activities	"I once had a calculation made for how much money I need to save for a good pension"	27%	29%	27%
	"I did get some information about the amount of my future pension"	54%	46%	49%
	"I have been inquiring a lot about financial planning and pensions for the past few years"	43%	40%	38%
Perceived retirement savings adequacy	"Suppose you would stop working when you reach the pension state age. Do you think you will have built up enough pension savings (…) to live a comfortable life?"	66%	56%	46%
	"I'm saving enough for a good retirement"	47%	40%	29%
	"I expect to get a good pension"	54%	36%	31%

Note: Percentages present the share of respondents who responded "Agree" or "Strongly agree".

Table 3. Unstandardized regression coefficients of Model 3

Labour market group	Effect of retirement goal clarity on financial retirement planning activities (a)		Effect of financial retirement planning activities on perceived retirement savings adequacy (b)		Indirect effect of retirement goal clarity on perceived retirement savings adequacy (a*b)		
	Coefficient	Z-value	Coefficient	Z-value	Est.	C.I.	
						Low	High
Employees	0.691 (0.043)	16.203***	0.245 (0.025)	9.957***	0.169	0.132	0.209
Voluntary SSE's	0.772 (0.051)	15.200***	0.315 (0.004)	11.123***	0.243	0.193	0.298
Involuntary SSE's	0.532 (0.095)	5.605***	0.399 (0.057)	7.024***	0.212	0.125	0.314

Note: SSE stands for solo self-employed. Standard errors are in brackets. C.I. for total mediation effects are obtained with Monte-Carlo estimation. Model includes control variabels.
Significance values: * = 0.05, ** = 0.01, *** = 0.005

Table 4. Wald tests results of differences in model coefficients between groups

Employment group	Retirement goal clarity on financial retirement planning activities			Financial retirement planning activities on perceived retirement savings adequacy		
	P-value	**DF**	**Wald statistic**	**P-value**	**DF**	**Wald statistic**
Employees VS Voluntary SSE VS Involuntary SSE	0.060	2	5.637	0.019*	2	7.900
Employees VS voluntary SSE	0.170	1	1.885	0.058	1	3.585
Employees VS involuntary SSE	0.118	1	2.443	0.012*	1	6.244
Voluntary SSE VS involuntary SSE	0.022*	1	5.248	0.184	1	1.761

Note: SSE stands for solo self-employed.
Significance levels: * = 0.05, ** = 0.01, *** = 0.005

Figure 1. Theoretical model (inspired by Hershey et al., 2007, 2010)

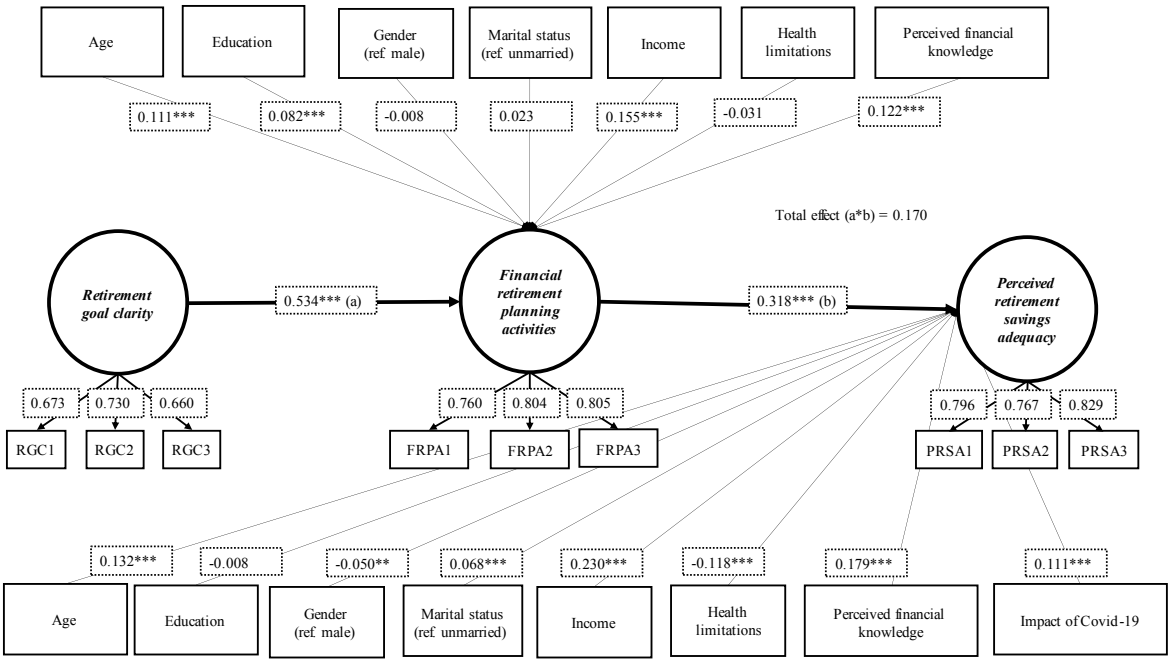

Figure 2. Path diagram and standardized regression coefficients of Model 2.

Note: Squares represent observed indicators and circles represent latent variables. The unstandardized total effect is 0.214, lower and upper bounds of the Montecarlo confidence interval are 0.183 and 0.246 respectively.

Significance levels: * = 0.05, ** = 0.001, *** = 0.005

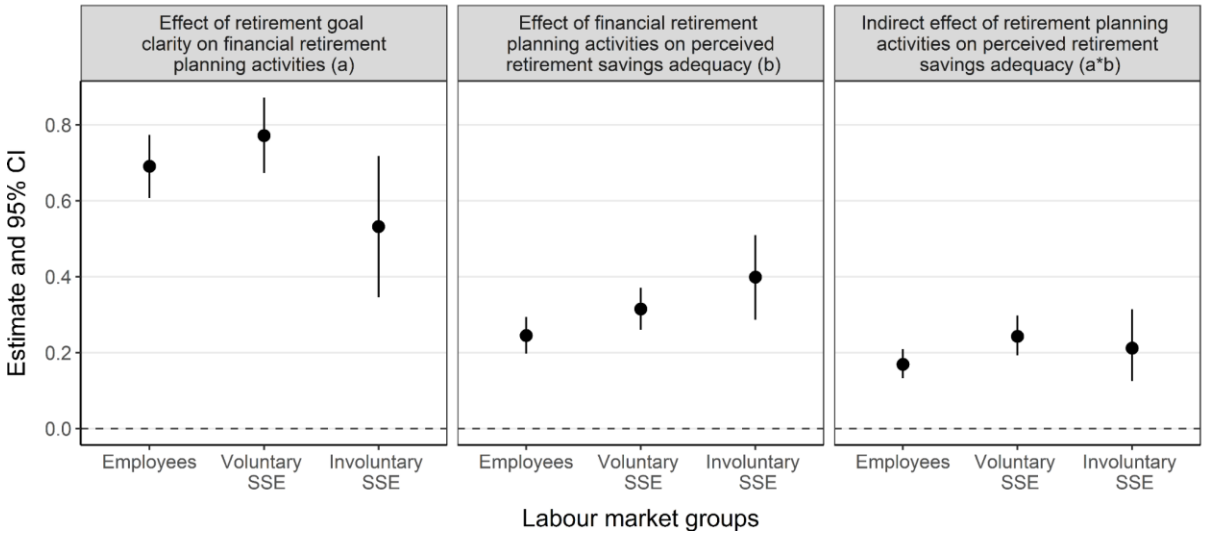

Figure 3. Unstandardized regression coefficients and Monte-carlo confidence intervals of Model 3.

Note: SSE stands for solo self-employed; CI stands for confidence intervals; points represent the point estimates of the regression coefficients, while lower and upper bounds represent confidence intervals (for the total indirect effect, based on Monte Carlo estimation)